City of Traverse City Police and Fire Health Care Coverages During Retirement

Report of the Actuarial Valuation Report as of June 30, 2018

GRS

Table of Contents

GRS Retirement Consulting
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April 12, 2019

Mr. James A. Henderson
Deputy Treasurer
City of Traverse City
400 Boardman Avenue
Traverse City, Michigan 49684

Dear Mr. Henderson:

The results of the June 30, 2018 Actuarial Valuation of the City of Traverse City Police and Fire Health Care Coverages During Retirement are presented in this report.

This report was prepared at the request of the City of Traverse City and is intended for use by the City of Traverse City and those designated or approved by the City. This report may be provided to parties other than the City of Traverse City only in its entirety and only with the permission of the City. GRS is not responsible for unauthorized use of this report.

The purposes of the valuation are to measure the City's funding progress and to determine the employer contributions for the fiscal years ending June 30, 2020 and June 30, 2021. This report should not be relied on for any purpose other than the purposes described herein. Determinations of financial results, associated with the benefits described in this report, for purposes other than those identified above may be significantly different.

The contribution rate in this report is determined using the actuarial assumptions and methods disclosed in Section E of this report. Additional assessment of risks was outside the scope of this assignment.

The findings in this report are based on data and other information through June 30, 2018. The valuation was based upon information furnished by the City of Traverse City, concerning retiree health benefits, financial transactions, plan provisions and active members, terminated members, retirees and beneficiaries. We checked for internal and year-to-year consistency, but did not audit the data. We are not responsible for the accuracy or completeness of the information provided by the City of Traverse City.

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This report was prepared using assumptions adopted by the City of Traverse City. All actuarial assumptions used in this report are reasonable for the purposes of this valuation. Additional information about the actuarial assumptions is included in the section of this report entitled Actuarial Cost Method and Actuarial Assumptions.

This report has been prepared by actuaries who have substantial experience valuing public employee retirement systems. To the best of our knowledge, the information contained in this report is accurate and fairly presents the actuarial position of the City of Traverse City as of the valuation date. All calculations have been made in conformity with generally accepted actuarial principles and practices and with the Actuarial Standards of Practice issued by the Actuarial Standards Board.

Mark Buis and James D. Anderson are Members of the American Academy of Actuaries (MAAA) and meet the Academy's Qualification Standards to render the actuarial opinions contained herein.

The signing actuaries are independent of the plan sponsor.

Gabriel, Roeder, Smith & Company will be pleased to review this valuation and report with the Board of Trustees and to answer any questions pertaining to the valuation.

Respectfully submitted,

GABRIEL, ROEDER, SMITH & COMPANY

Mark Buis

Mark Buis, FSA, EA, FCA, MAAA

James D. Anderson

James D. Anderson, FSA, EA, FCA, MAAA

MB/JDA:dj

930

EXECUTIVE SUMMARY

Executive Summary

Actuarially Computed Employer Contribution

Please note that beginning with the fiscal year ending June 30, 2017, GASB Statement No. 43 was replaced by GASB Statement No. 74. Also, beginning with the fiscal year ending June 30, 2018, GASB Statement No. 45 was replaced by GASB Statement No. 75. Separate GASB reports will be required to comply with the actuarial requirements of GASB Statements No. 74 and No. 75 for the fiscal year ending June 30, 2018. As such, there will no longer be an "Annual Required Contribution" calculated in the valuation report. Therefore, we have determined the "Actuarially Computed Employer Contribution."

We have calculated the Actuarially Computed Employer Contribution for the fiscal years ending June 30, 2020 and June 30, 2021 under the interest rate assumption of 7.50%. Below is a summary of the results.

For additional details, please refer to Section A, "Valuation Results."

	Actuarially Computed Employer Contribution	Estimated Premiums Paid for Retirees
Fiscal Year Ending June 30, 2020	$526,118	$491,064
Fiscal Year Ending June 30, 2021	527,496	515,041

Liabilities and Assets – as of June 30, 2018

	7.50% Interest
1. Present Value of Future Benefit Payments	$9,233,320
2. Actuarial Accrued Liability	8,569,405
3. Plan Assets	3,834,650
4. Unfunded Actuarial Accrued Liability (2) – (3)	4,734,755
5. Funded Ratio (3)/(2)	44.7%

The Present Value of Future Benefit Payments (PVFB) is the present value of all benefits projected to be paid from the plan for past and future service to current members. The Actuarial Accrued Liability is the portion of the PVFB allocated to past service by the Plan's funding method (see the Section titled "Actuarial Cost Method and Actuarial Assumptions").

SECTION A

VALUATION RESULTS

City of Traverse City Police and Fire Health Care Coverages During Retirement – Results by Group Fiscal Years Ending June 30, 2020 and June 30, 2021

	Police	Fire	Total
A. Present Value of Future Benefits			
i) Retirees and Beneficiaries	$ 4,700,180	$ 1,543,411	$ 6,243,591
ii) Vested Terminated Members	0	0	0
iii) Active Members	2,630,815	358,914	2,989,729
Total Present Value of Future Benefits	$ 7,330,995	$ 1,902,325	$ 9,233,320
B. Present Value of Future Normal Costs	566,594	97,321	663,915
C. Actuarial Accrued Liability (A.-B.)	6,764,401	1,805,004	8,569,405
D. Actuarial Value of Assets	2,606,948	1,227,702	3,834,650
E. Unfunded Actuarial Accrued Liability (UAAL)(C.-D.)	$ 4,157,453	$ 577,302	$ 4,734,755
F. Funded Ratio (D./C.)	38.5%	68.0%	44.7%
G. Fiscal Year Ending June 30, 2020			
i) Employer Normal Cost	$ 76,110	$ 11,576	$ 87,686
ii) Amortization of UAAL	384,975	53,457	438,432
Actuarially Computed Employer Contribution	**$ 461,085**	**$ 65,033**	**$ 526,118**
H. Fiscal Year Ending June 30, 2021			
Actuarially Computed Employer Contribution	**$ 462,303**	**$ 65,193**	**$ 527,496**

The Unfunded Actuarial Accrued Liabilities (UAAL) were amortized as a level dollar amount over a period of 21 years for the fiscal year ending June 30, 2020 and decreasing by one each year thereafter.

The long-term rate of investment return used in this valuation is 7.50%.

Development of Funding Value of Assets

Year Ended June 30:	2017	2018	2019	2020	2021
A. Funding Value Beginning of Year	$3,761,310	$3,791,523			
B. Market Value End of Year	3,373,566	3,468,746			
C. Market Value Beginning of Year	3,352,925	3,373,566			
D. Non-Investment Net Cash Flow	20,641	17,629			
E. Investment Income					
E1. Market Total: B - C - D	0	77,551			
E2. Amount for Immediate Recognition: (7.50%)	282,872	285,025			
E3. Amount for Phased-In Recognition: E1-E2	(282,872)	(207,474)			
F. Phased-In Recognition of Investment Income					
F1. Current Year: 0.25 x E3	(70,718)	(51,869)			
F2. First Prior Year	(68,863)	(70,718)	$ (51,869)		
F3. Second Prior Year	(68,079)	(68,863)	(70,718)	$ (51,869)	
F4. Third Prior Year	(65,640)	(68,077)	(68,863)	(70,718)	$(51,867)
F5. Total Recognized Investment Gain (Loss)	(273,300)	(259,527)	(191,450)	(122,587)	(51,867)
G. Funding Value End of Year: A + D + E2 + F5	3,791,523	3,834,650			
H. Difference between Market & Funding Value	(417,957)	(365,904)			

The Funding Value of Assets recognizes assumed investment income (line E2) fully each year. Differences between actual and assumed investment income (line E3) are phased-in over a closed four-year period. During periods when investment performance exceeds the assumed rate, Funding Value of Assets will tend to be less than Market Value. During periods when investment performance is less than the assumed rate, Funding Value of Assets will tend to be greater than Market Value. The Funding Value of Assets is unbiased with respect to Market Value. At any time it may be either greater or less than Market Value. If actual and assumed rates of investment income are exactly equal for three consecutive years, the Funding Value will become equal to Market Value.

Comments

Comment A: One of the key assumptions used in any valuation of the cost of post-employment benefits is the rate of return on Plan assets. Higher assumed investment returns will result in a lower Actuarially Computed Employer Contribution. Lower returns will tend to increase the computed Actuarially Computed Employer Contribution. We have calculated the liability and the resulting Actuarially Computed Employer Contribution using an assumed long term rate of investment return of 7.50% per annum.

Comment B: The Plan Sponsor is required by GASB to perform actuarial valuations at least biennially or more frequently if significant changes in the OPEB are made in the interim.

Comment C: The Actuarially Computed Employer Contribution increased from $480,230 in the June 30, 2016 valuation to $526,118 in the June 30, 2018 valuation. This was primarily due to unfavorable investment performance, which had a greater impact on the Fire group because the Fire group had a much higher funded status than the Police group.

Comment D: The funding value of assets developed as of June 30, 2018 was split between the Police and Fire groups based on the June 30, 2018 market value split provided by the City.

Comment E: The period of years used to amortize (pay off) the unfunded accrued liability is 21 years beginning with the fiscal year ending June 30, 2020. The amortization period is closed. This means that the amortization period will decrease by one year each year until the unfunded (or overfunded) liability is paid off.

Changing the amortization period does not change the ultimate cost of benefits. The cost of the benefits is based upon the benefits provided, the way they are used by retired members, and future health inflation.

Comment F: The "Cadillac" tax is a 40% excise tax paid by the coverage provider (employer and/or insurer) on the value of health plan costs in excess of certain thresholds, effective in 2022. The initial thresholds are $10,200 for single coverage or $27,500 for family coverage. Many plans are below the thresholds today, but are likely to exceed them in the next decade. The thresholds will be indexed at CPI-U, which is lower than the medical inflation rates affecting the cost of the plans. There is considerable uncertainty about how the tax would be applied, and considerable latitude in grouping of participants for tax purposes. Combining early retiree and Medicare eligible retiree costs is allowed and can keep plans under the thresholds for a longer period of time. For this valuation, there was no load applied to the health care liabilities to approximate the cost for future excise tax, based on the current plan provisions and assumptions. We have not identified any other specific provision of health care reform that would be expected to have a significant impact on the measured obligation. As additional guidance on the legislation is issued, we will review and monitor the impact.

Comment G: Michigan Public Act 202 of 2017 created new reporting and other requirements for local units of government. As such, we can work with the City of Traverse City Police and Fire Health Care Coverages During Retirement Plan to develop a funding policy to document Plan procedures and facilitate compliance.

Comments (Concluded)

Comment H: The GASB issued Statement Nos. 74 and 75 for OPEB valuations similar to the new pension standards. GASB Statement No. 74 for the plan OPEB disclosures is effective for fiscal years beginning after June 15, 2016. GASB Statement No. 75 for employer OPEB disclosures is effective for employer fiscal years beginning after June 15, 2017. The GASB implementation guides for Statement Nos. 74 and 75 provide additional clarification related to the implementation of these Statements. The information necessary for GASB Statement Nos. 74 and 75 was published in an earlier report dated September 24, 2018.

SECTION B

RETIREE PREMIUM RATE DEVELOPMENT

Retiree Premium Rate Development

Uncapped Fire

Initial premium rates were developed for the post-65 retirees only, as there are no pre-65 retirees left in the group. For the post-65 retirees, the fully-insured premium rate provided by the City is used as the basis of the initial per capita cost without adjustments since the rate reflects the demographics of the group.

Age graded and sex distinct premiums are utilized for this group. The premiums developed by the preceding process are appropriate for the unique age and sex distribution currently existing. Over the future years covered by this valuation, the age and sex distribution will most likely change. Therefore, our process "distributes" the average premium over all age/sex combinations and assigns a unique premium for each combination. The age/sex specific premiums more accurately reflect the health care utilization and cost at that age.

The combined monthly one-person medical and drug premiums at select ages are shown below:

For Those Eligible for Medicare		
Age	**Male**	**Female**
65	$ 473.80	$ 446.89
70	516.14	499.45
75	554.35	540.92

Retiree Premium Rate Development (Continued)

For Fire Members Retired After July 1, 1995 and Police Retired Prior to July 1, 2009

The data used for this valuation was the data submitted by the City for the June 30, 2018 valuation of the Police and Fire Retirement System. The data appears to be complete and reasonable.

The monthly rates upon which projected premiums were based for future retirees are shown below:

	Employer-Paid		
Status	**Police^ Retired Before 7/1/09**	**Police Captains^ Retired Before 7/1/09**	**Fire* Retired After 7/1/95**
Before Medicare:			
Single	$ 590.74	$ 581.40	$210.90
Couple	1,245.59	1,276.18	442.90
After Medicare:			
Single	$ 590.74	$ 581.40	$210.90
Couple	1,245.59	1,276.18	442.90

^ *Increases in employer paid annual premiums for Police and Police Captains retired before 7/1/2009 are limited to 5% per year. Retirees are responsible for that portion of the premium increases not provided by the employer.*

* *Individually negotiated premiums were used for Firefighters Catt and Core.*

A comparative schedule of pre-65 premium rates used for previous valuations is shown on page B-3.

Retiree Premium Rate Development (Continued)

Year Ending	Police Retired Before 7/1/09 Capped		Police Captains Retired Before 7/1/09 Capped	
	Single	Couple	Single	Couple
2008	$362.67	$ 764.69	$356.92	$ 783.46
2009	380.80	802.92	374.78	822.64
2010	399.84	843.07	393.51	863.77
2011	419.83	885.22	413.91	906.96
2012	440.82	929.48	433.85	952.31
2014	486.00	1,024.75	478.32	1,049.92
2016	535.82	1,129.79	527.35	1,157.54
2018	590.74	1,245.59	581.40	1,276.18

Year Ending	Fire			
	Capped		Uncapped	
	Single	Couple	Single	Couple
2008	$210.90*	$442.90*	$734.13	$1,468.26
2009	210.90*	442.90*	787.46	1,117.89
2010	210.90*	442.90*	740.16	1,244.10
2011	210.90*	442.90*	N/A	N/A
2012	210.90*	442.90*	N/A	N/A
2014	210.90*	442.90*	N/A	N/A
2016	210.90*	442.90*	N/A	N/A
2018	210.90*	442.90*	N/A	N/A

* *Individually negotiated premiums were used for Firefighters Catt and Core.*

For Police Retired After July 1, 2009

The employer is responsible for eighty percent (80%) of the cost of the premium and retirees are responsible for twenty percent (20%) of the cost of the premium. Initial premium rates were developed for the two classes of retirees (pre-65 and post-65). The fully-insured rates provided by the City were utilized to determine the appropriate premium rates. The pre-65 fully-insured premiums are blended rates based on the combined experience of active and pre-65 retired members; therefore, there is an implicit employer subsidy for the non-Medicare eligible retirees since the average costs of providing health care benefits to retirees under age 65 is higher than the average cost of providing health care benefits to active employees. The true per capita cost for the pre-65 retirees is developed by adjusting the demographic differences between the active employees and retirees to reflect this implicit rate subsidy for the retirees. Since the 80%/20% distribution of the premium cost is a relatively recent change, the impact of the implied rate subsidy was phased-in over the prior two valuations. The impact of the full implied rate subsidy is fully reflected in this valuation.

Retiree Premium Rate Development (Concluded)

For the post-65 retirees, the fully-insured premium rate is used as the basis of the initial per capita cost without adjustments since the rate reflects the demographics of the post-65 retiree group.

Age graded and sex distinct premiums are utilized for this group. The premiums developed by the preceding process are appropriate for the unique age and sex distribution currently existing. Over the future years covered by this valuation, the age and sex distribution will most likely change. Therefore, our process “distributes” the average premium over all age/sex combinations and assigns a unique premium for each combination. The age/sex specific premiums more accurately reflect the health care utilization and cost at that age.

The combined monthly one-person medical and drug premiums at select ages are shown below:

For Those Not Eligible for Medicare		
Age	**Male**	**Female**
45	$ 433.34	$ 598.06
50	564.25	695.10
55	742.49	810.69
60	958.97	944.25

For Those Eligible for Medicare		
Age	**Male**	**Female**
65	$ 467.85	$ 441.28
70	509.66	493.17
75	547.38	534.12

The undersigned is a Member of the American Academy of Actuaries (MAAA) and meets the Qualification Standards of the American Academy of Actuaries to certify the per capita retiree health care rates shown above.

James E. Pranschke

James E. Pranschke, FSA, MAAA

SECTION C

SUMMARY OF BENEFIT PROVISIONS

City of Traverse City Police and Fire Retiree Health Care Plan
Summary of Benefits as of June 30, 2018

Leaving Employment as a Result of	Eligibility for Benefit	Coverage Provided by Employer		Retiree Health Care Provider(s)	Employer Share of Cost	
		Retiree	Spouse		Retiree	Spouse
Normal Retirement						
Police Officers and Sergeants (retired before July 1, 2009)	10 years of service, retire under the Act 345 Retirement System, and must be receiving an Act 345 Pension.	Medical Prescription drug	Medical Prescription drug	Priority Health	Benefit equivalent to July 1, 1991 premium plus 5.0% annual inflation.	Benefit equivalent to July 1, 1991 premium plus 5.0% annual inflation.
Police Officers and Sergeants (retired on or after July 1, 2009)	10 years of service, retire under the Act 345 Retirement System, and must be receiving an Act 345 Pension.	Medical Prescription drug	Medical Prescription drug	Priority Health	Employer pays 80% of the premium. Retiree is responsible for 20% of the premium.	Employer pays 80% of the premium. Retiree is responsible for 20% of the premium.
Police Officers and Sergeants (hired after July 1, 2009)	Not Eligible	N/A	N/A	N/A	N/A	N/A
Police Captains Unit (retired before July 1, 2009)	10 years of service, retire under the Act 345 Retirement System, and must be receiving an Act 345 Pension.	Medical Prescription drug	Medical Prescription drug	Priority Health	Benefit equivalent to July 1, 1991 premium plus 5.0% annual inflation.	Benefit equivalent to July 1, 1991 premium plus 5.0% annual inflation.
Police Captains Unit (retired on or after July 1, 2009)	10 years of service, retire under the Act 345 Retirement System, and must be receiving an Act 345 Pension.	Medical Prescription drug	Medical Prescription drug	Priority Health	Employer pays 80% of the premium. Retiree is responsible for 20% of the premium.	Employer pays 80% of the premium. Retiree is responsible for 20% of the premium.
Police Captains Unit (hired after July 1, 2009)	Not Eligible	N/A	N/A	N/A	N/A	N/A
Firefighters	Retire under the Retirement System after age 50. 25 years of service at any age. Retired before age 50 with 25 years of service and currently older than age 50.	Medical Prescription drug	Medical Prescription drug	Priority Health (through 7/31/2012) United American Insurance Company (effective 8/1/2012)	Members retiring after July 1, 1995 receive a capped benefit as described in the 7/1/1999 c.b.a. Health care premiums for members retiring prior to July 1, 1995 are fully paid by the City.	Members retiring after July 1, 1995 receive a capped benefit as described in the 7/1/1999 c.b.a. Health care premiums for members retiring prior to July 1, 1995 are fully paid by the City.
Firefighters (hired after July 1, 2009)	Not Eligible	N/A	N/A	N/A	N/A	N/A
Early Retirement						
Police Officers and Sergeants	Same as above	Same as above	Same as above	Same as above	Same as above	Same as above
Police Captains Unit	Same as above	Same as above	Same as above	Same as above	Same as above	Same as above
Firefighters	Same as above	Same as above	Same as above	Same as above	Same as above	Same as above
Deferred Vested Termination	Not Offered	N/A	N/A	N/A	N/A	N/A
Non-Duty Disability						
Police Officers and Sergeants	Same as above	Same as above	Same as above	Same as above	Same as above	Same as above
Police Captains Unit	Same as above	Same as above	Same as above	Same as above	Same as above	Same as above
Firefighters	Same as above	Same as above	Same as above	Same as above	Same as above	Same as above
Duty Disability						
Police Officers and Sergeants	Same as above	Same as above	Same as above	Same as above	Same as above	Same as above
Police Captains Unit	Same as above	Same as above	Same as above	Same as above	Same as above	Same as above
Firefighters	Same as above	Same as above	Same as above	Same as above	Same as above	Same as above
Non-Duty Death-in-Service						
Police Officers and Sergeants	Same as above		Same as above	Same as above		Same as above
Police Captains Unit	Same as above		Same as above	Same as above		Same as above
Firefighters	Same as above		Same as above	Same as above		Same as above
Duty Death-in-Service						
Police Officers and Sergeants	Same as above		Same as above	Same as above		Same as above
Police Captains Unit	Same as above		Same as above	Same as above		Same as above
Firefighters	Same as above		Same as above	Same as above		Same as above

City of Traverse City Police and Fire Retiree Health Care Plan Summary of Benefits as of June 30, 2018 (Concluded)

Miscellaneous

- Benefits paid to spouses terminate in event of divorce or remarriage of surviving spouse.
- Retirees are required to have Medicare coverage when they become eligible.
- Retirees are responsible for any portion of the health care premiums not provided by the employer.
- Premiums paid by the retiree for the retiree's share of health care cost for themselves, eligible spouses and dependents are handled outside this Plan. The Plan is intended to fund only the Plan Sponsor paid portion of retiree health care cost.
- Police Officers and Sergeants and Police Captains hired after July 1, 2009 are not eligible for retiree health insurance coverage. Instead the City will add 1.5% to the current 0.5% Defined Contribution RHS, matched by an employee share of 0.5%.
- Firefighters hired after July 1, 2009 are not eligible for retiree health insurance coverage. Instead the City will make a 2% contribution to the Defined Contribution RHS, matched by an employee share of 1.5%.

This is a brief summary of the City of Traverse City Police and Fire Retiree Health Care Plan provisions. In the event that any description contained herein differs from the actual eligibility or benefit, the appropriate Plan Sponsor Ordinance and/or employee contract will prevail.

SECTION D

SUMMARY OF PARTICIPANT DATA

Total Active Members as of June 30, 2018
by Age and Years of Service

Age	Years of Service to Valuation Date							Totals	
	0-4	5-9	10-14	15-19	20-24	25-29	30 Plus	No.	Valuation Payroll
20-24									
25-29									
30-34			2					2	$ 157,756
35-39			6	1				7	515,496
40-44			4	2				6	472,298
45-49			3	2	3			8	621,382
50-54			1	2	3	1		7	643,896
55-59				2				2	182,728
60-64									
65 & Over									
Totals			**16**	**9**	**6**	**1**		**32**	**$2,593,556**

While not used in the financial computations, the following group averages are computed and shown because of their general interest.

Age:	44.7	years
Service:	16.2	years
Annual Pay:	$81,049	

Police Active Members as of June 30, 2018
by Age and Years of Service

Age	Years of Service to Valuation Date							Totals	
	0-4	5-9	10-14	15-19	20-24	25-29	30 Plus	No.	Valuation Payroll
20-24									
25-29									
30-34									
35-39			3					3	$ 221,237
40-44			2	1				3	226,289
45-49			2	1	2			5	364,764
50-54				2	2	1		5	421,217
55-59				1				1	86,065
60-64									
65 & Over									
Totals			**7**	**5**	**4**	**1**		**17**	**$1,319,572**

While not used in the financial computations, the following group averages are computed and shown because of their general interest.

Age:	46.4	years
Service:	17.4	years
Annual Pay:	$77,622	

Fire Active Members as of June 30, 2018
by Age and Years of Service

Age	Years of Service to Valuation Date							Totals	
	0-4	5-9	10-14	15-19	20-24	25-29	30 Plus	No.	Valuation Payroll
20-24									
25-29									
30-34			2					2	$ 157,756
35-39			3	1				4	294,259
40-44			2	1				3	246,009
45-49			1	1	1			3	256,618
50-54			1		1			2	222,679
55-59				1				1	96,663
60-64									
65 & Over									
Totals			**9**	**4**	**2**			**15**	**$1,273,984**

While not used in the financial computations, the following group averages are computed and shown because of their general interest.

Age:	42.8	years
Service:	14.9	years
Annual Pay:	$84,932	

Retired Members as of June 30, 2018 by Attained Age

Total

Attained Age	Number of Retirees		
	Male	Female	Total
Under 55	4	0	4
55-59	3	0	3
60-64	6	0	6
65 & Over	28	9	37
Totals	**41**	**9**	**50**

Police

Attained Age	Number of Retirees		
	Male	Female	Total
Under 55	2	0	2
55-59	1	0	1
60-64	1	0	1
65 & Over	19	2	21
Totals	**23**	**2**	**25**

Fire

Attained Age	Number of Retirees		
	Male	Female	Total
Under 55	2	0	2
55-59	2	0	2
60-64	5	0	5
65 & Over	9	7	16
Totals	**18**	**7**	**25**

The counts above only include those retirees who have elected to receive retiree health care coverage through the City of Traverse City Police and Fire Health Care Coverages During Retirement.

There are no deferred members who are eligible for retiree health care benefits.

SECTION E

ACTUARIAL COST METHOD AND ACTUARIAL ASSUMPTIONS

Valuation Methods

Actuarial Cost Method. Normal cost and the allocation of benefit values between service rendered before and after the valuation date was determined using an **Individual Entry-Age Actuarial Cost Method** having the following characteristics:

(i) the annual normal cost for each individual active member, payable from the date of employment to the date of retirement, is sufficient to accumulate the value of the member's benefit at the time of retirement; and

(ii) each annual normal cost is a constant percentage of the member's year-by-year projected covered pay.

Actuarial gains (losses), as they occur, reduce (increase) the Unfunded Actuarial Accrued Liability.

Financing of Unfunded Actuarial Accrued Liabilities. Unfunded Actuarial Accrued Liabilities (UAAL) (full funding credit if assets exceed liabilities) were amortized by a level dollar amount. The UAAL was determined using the funding value of assets and actuarial accrued liability calculated as of the valuation date. The UAAL amortization payment (one component of the contribution requirement), is the level dollar amount required to fully amortized the UAAL over a 21-year period beginning on the valuation date.

Actuarial Value of System Assets. The Actuarial Value of Assets recognizes assumed investment income fully each year. Differences between actual and assumed investment income are phased-in over a closed 4-year period. During periods when investment performance exceeds the assumed rate, Actuarial Value of Assets will tend to be less than Market Value. During periods when investment performance is less than the assumed rate, Actuarial Value of Assets will tend to be greater than Market Value.

Actuarial Assumptions

The rate of investment return (regular interest)*,* net of investment expense, was 7.50% per year, compounded annually. This rate is not the assumed real return which, for funding purposes, is the rate of return in excess of average salary increases. Considering other assumptions used in the valuation, the 7.50% translates to a real return over wage inflation of approximately 3.50%.

The rates of salary increase used for individual members are in accordance with the following table. This assumption is used to project a member's current salary to the salaries upon which future contributions will be based.

	% Increase in Salary at Sample Ages				
Sample	Merit and Seniority		Base	Increase Next Year	
Ages	Police	Fire	(Economic)	Police	Fire
20	3.00%	3.00%	4.00%	7.00%	7.00%
25	3.00	3.00	4.00	7.00	7.00
30	2.60	2.60	4.00	6.60	6.60
35	1.10	1.10	4.00	5.10	5.10
40	0.20	0.20	4.00	4.20	4.20
45	0.20	0.20	4.00	4.20	4.20
50	0.20	0.20	4.00	4.20	4.20
55	0.10	0.10	4.00	4.10	4.10
60	0.00	0.00	4.00	4.00	4.00
Ref	100	100	0.04		

The number of active members is assumed to decrease, due to closure of the Plan to new hires.

Actuarial Assumptions (Continued)

The mortality tables was the RP-2000 Mortality Table projected 20 years with Scale AA.

Sample Attained Ages	Probability of Dying Next Year		Future Life Expectancy (Years)	
	Men	Women	Men	Women
45	0.110%	0.081%	38.50	39.46
50	0.142	0.119	33.72	34.63
55	0.213	0.231	28.98	29.88
60	0.431	0.457	24.36	25.31
65	0.851	0.878	20.00	21.02
70	1.494	1.515	15.98	17.06
75	2.506	2.394	12.28	13.47
80	4.643	3.987	9.01	10.23
Ref	#454x1sb1yrs	#455x1sb0yrs		

This assumption is used to measure the probabilities of each benefit payment being made after retirement. For active members, the probabilities of dying before retirement were based upon the same mortality table as members dying after retirement and the probabilities of each benefit payment being made after retirement.

Actuarial Assumptions (Continued)

The rates of retirement used to measure the probability of eligible members retiring during the next year were as follows:

Retirement Ages	Percent of Eligible Active Members Retiring Within Next Year	
	Police	Fire
45		20%
46		20
47		20
48		20
49		20
50	35%	20
51	25	15
52	20	10
53	15	10
54	15	10
55	15	10
56	15	10
57	15	10
58	25	10
59	30	20
60	100	100
Ref	23	47

Actuarial Assumptions (Continued)

Rates of separation from active membership were as shown below (rates do not apply to members eligible to retire and do not include separation on account of death or disability). This assumption measures the probabilities of members remaining in employment.

		Percent of Active Members Separating Within Next Year			
		Police		Fire	
Sample Ages	Service Index	Males	Females	Males	Females
ALL	0	15.00%	15.00%	15.00%	15.00%
	1	10.00	10.00	10.00	10.00
	2	8.00	8.00	8.00	8.00
	3	7.00	7.00	7.00	7.00
	4	6.00	6.00	6.00	6.00
20	5 & Over	6.00	6.00	6.00	6.00
25		6.00	6.00	6.00	6.00
30		5.10	5.10	5.10	5.10
35		2.70	2.70	2.70	2.70
40		1.60	1.60	1.60	1.60
45		1.10	1.10	1.10	1.10
50		1.00	1.00	1.00	1.00
55		1.00	1.00	1.00	1.00
60		1.00	1.00	1.00	1.00
65		1.00	1.00	1.00	1.00
Ref		17	17	17	17
		#58x1	#58x1	#58x1	#58x1

Rates of disability among active members.

	Percent Becoming Disabled Within Next Year			
	Police		Fire	
Sample Ages	Males	Females	Males	Females
20	0.08%	0.10%	0.08%	0.10%
25	0.08	0.10	0.08	0.10
30	0.08	0.10	0.08	0.10
35	0.08	0.10	0.08	0.10
40	0.20	0.36	0.20	0.36
45	0.27	0.41	0.27	0.41
50	0.49	0.57	0.49	0.57
55	0.89	0.77	0.89	0.77
60	1.41	1.02	1.41	1.02
65	1.66	1.23	1.66	1.23
Ref	#9x100	#10x100	#9x100	#10x100

Actuarial Assumptions (Concluded)

Health cost increases – See table below:

	Medical and Drug Trend Rates	
Year Beginning July 1,	Fire Retired Before 7/1/95 and Police Retired On or After 7/1/09	Police Retired Prior to 7/1/09
2019	8.25%	5.00%
2020	7.75	5.00
2021	7.25	5.00
2022	6.75	5.00
2023	6.25	5.00
2024	5.75	5.00
2025	5.25	5.00
2026	4.75	5.00
2027	4.25	5.00
2028	4.00	5.00
2029 & Later	4.00	5.00 *

* *Drops to 4.00% in the year 2033.*

Miscellaneous and Technical Assumptions

Decrement Operation	Disability and mortality decrements do not operate during the first five years of service. Disability also does not operate during retirement eligibility.
Decrement Timing	Normal and Early Retirement are assumed to occur at the beginning of the year. All other decrements were assumed to occur at the end of the year.
Eligibility Testing	Eligibility for benefits is determined based upon the age nearest birthday and service nearest whole year on the date the decrement is assumed to occur.
Incidence of Contributions	Contributions are assumed to be received continuously throughout the year based upon the computed dollar amounts shown in this report.
Marriage Assumption	90% of males and 90% of females are assumed to be married for purposes of death-in-service benefits. Male spouses are assumed to be three years older than female spouses for active member valuation purposes.
Medicare Coverage	Assumed to be available for all covered employees on attainment of age 65. Disabled retirees were assumed to be eligible for Medicare coverage at age 65.
Election Percentage	It was assumed that 20% of Police retirees and 10% of Fire retirees would choose not to receive retiree health care benefits through the City. Of those assumed to elect coverage, 90% of Police members and 80% of Fire members were assumed to elect two-person coverage, if eligible. For those that elect two-person coverage, it was assumed that coverage would continue to the spouse upon death of the retiree, if eligible.

APPENDIX

Glossary

Accrued Service. The service credited under the plan which was rendered before the date of the actuarial valuation.

Actuarial Accrued Liability. The difference between (i) the actuarial present value of future plan benefits, and (ii) the actuarial present value of future normal cost. Sometimes referred to as "accrued liability" or "past service liability."

Actuarial Assumptions. Estimates of future plan experience with respect to rates of mortality, disability, turnover, retirement, rate or rates of investment income and salary increases. Decrement assumptions (rates of mortality, disability, turnover and retirement) are generally based on past experience, often modified for projected changes in conditions. Economic assumptions (salary increases and investment income) consist of an underlying rate in an inflation-free environment plus a provision for a long-term average rate of inflation.

Actuarial Cost Method. A mathematical budgeting procedure for allocating the dollar amount of the "actuarial present value of future plan benefits" between the actuarial present value of future normal cost and the actuarial accrued liability. Sometimes referred to as the "actuarial funding method."

Actuarial Equivalent. A single amount or series of amounts of equal value to another single amount or series of amounts, computed on the basis of the rate(s) of interest and mortality tables used by the plan.

Actuarial Present Value. The amount of funds presently required to provide a payment or series of payments in the future. It is determined by discounting the future payments at a predetermined rate of interest, taking into account the probability of payment.

Actuarially Computed Employer Contribution. The Actuarially Computed Employer Contribution is the normal cost plus the portion of the unfunded actuarial accrued liability to be amortized in the current period. The Actuarially Computed Employer Contribution is an amount that is actuarially determined in accordance with the requirements so that, if paid on an ongoing basis, it would be expected to provide sufficient resources to fund both the normal cost for each year and the amortized unfunded liability.

Amortization. Paying off an interest-bearing liability by means of periodic payments of interest and principal, as opposed to paying it off with a lump sum payment.

Governmental Accounting Standards Board (GASB). GASB is the private, nonpartisan, nonprofit organization that works to create and improve the rules U.S. state and local governments follow when accounting for their finances and reporting them to the public.

Medical Trend Rate (Health Care Inflation). The increase in the cost of providing health care benefits over time. Trend includes such elements as pure price inflation, changes in utilization, advances in medical technology, and cost shifting.

Normal Cost. The annual cost assigned, under the actuarial funding method, to current and subsequent plan years. Sometimes referred to as "current service cost." Any payment toward the unfunded actuarial accrued liability is not part of the normal cost.

Glossary (Concluded)

Other Post-Employment Employee Benefits (OPEB). OPEB are post-employment benefits other than pensions. OPEB generally takes the form of health insurance and dental, vision, prescription drugs or other health care benefits.

Reserve Account. An account used to indicate that funds have been set aside for a specific purpose and are not generally available for other uses.

Unfunded Actuarial Accrued Liability. The difference between the actuarial accrued liability and valuation assets. Sometimes referred to as "unfunded accrued liability."

Valuation Assets. The value of current plan assets recognized for valuation purposes.